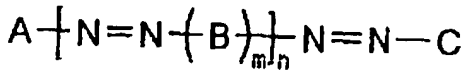
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1. (currently amended): A black ink for ink-jet recording, comprising a dye dissolved and/or dispersed in an aqueous medium, wherein the dye has a λmax of 500 to 700 nm and a half value width of 100 nm or more in an absorption spectrum of a dilute solution normalized to an absorbance of 1.0 and is a dye represented by the following general formula (1):

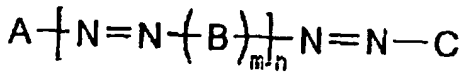


wherein A, B and C each independently represent an aromatic or heterocyclic group, which are substituted or unsubstituted provided that two or more of A, B and C is a substituted or unsubstituted, unsaturated heterocyclic group; m is 1 or 2; n is 1 or 2,

wherein the black ink has: a transition metal ion content of 0.1 mmol/l or less; and a forced fading rate constant k_{vis} of 5.0×10^{-2} [hour^{-1}] or less, in which the forced fading rate constant k_{vis} is decided by printing a black square symbol of JIS code 2223 in 48-point by using the black ink, measuring a reflection density D_{vis} of the printed symbol through a status A filter to obtain an initial density, forcedly fading the printed symbol by an ozone fading tester capable

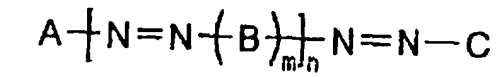
of continuously generating 5 ppm of ozone, and determining the time taken until the reflection density D_{vis} reaches 80% of the initial density.

Claim 2. (currently amended): A black ink for ink-jet recording, comprising a first dye and a second dye dissolved and/or dispersed in an aqueous medium, in which the first dye has a λmax of 500 to 700 nm and a half value width of 100 nm or more in an absorption spectrum of a dilute solution normalized to an absorbance of 1.0 and the second dye has a λmax of 350 to 500 nm in an absorption spectrum of an aqueous solution, wherein the black ink has a transition metal ion content of 0.1 mmol/l or less, and wherein the first dye is a dye represented by the following general formula (1):



wherein A, B and C each independently represent an aromatic or heterocyclic group, which are substituted or unsubstituted; m is 1 or 2; n is 1 or 2 and two or more of A, B and C is a substituted or unsubstituted, unsaturated heterocyclic group.

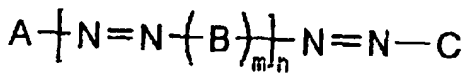
Claim 3. (currently amended): A black ink for ink-jet recording, comprising a dye dissolved and/or dispersed in an aqueous medium, wherein the dye has a λmax of 500 to 700 nm and a half value width of 100 nm or more in an absorption spectrum of a dilute solution normalized to an absorbance of 1.0 and is a dye represented by the following general formula (1):



wherein A, B and C each independently represent an aromatic or heterocyclic group, which are substituted or unsubstituted provided that two or more of A, B and C is a substituted or unsubstituted, unsaturated heterocyclic group; m is 1 or 2; n is 1 or 2,

wherein the black ink has a transition metal ion content of 0.1 mmol/l or less; and a ratio R of 1.2 or less, in which the ratio R is defined as a ratio of a maximum value to a minimum value of a forced fading rate constants k_R, k_G and k_B that are decided by printing a black square symbol of JIS code 2223 in 48-point by using the black ink, measuring reflection densities D_R, D_G and D_B of the printed symbol with respect to 3 colors of C (cyan), M (magenta) and Y (yellow) through a status A filter to obtain initial densities, respectively, forcedly fading the printed symbol by an ozone fading tester capable of continuously generating 5 ppm of ozone, and determining the times taken until the reflection densities D_R, D_G and D_B reach 80% of the initial densities, respectively.

Claim 4. (currently amended): A black ink for ink-jet recording, comprising a dye dissolved and/or dispersed in an aqueous medium, wherein the dye has a λmax of 500 to 700 nm and a half value width of 100 nm or more in an absorption spectrum of a dilute solution normalized to an absorbance of 1.0 and is a dye represented by the following general formula (1):



wherein A, B and C each independently represent an aromatic or heterocyclic group, which are substituted or unsubstituted provided that two or more of A, B and C is a substituted or unsubstituted, unsaturated heterocyclic group; m is 1 or 2; n is 1 or 2 ,

wherein the black ink has a transition metal ion content of 0.1 mmol/l or less, and the black ink comprises a dye having an oxidation potential of more than 1.0 V (vs SCE).

Claim 5. (original): The black ink for ink-jet recording according to claim 4, wherein the dye having a λmax of 500 to 700 nm includes a dye having an oxidation potential of more than 1.0 V (vs SCE).

Claim 6. (original): The black ink for ink-jet recording according to claim 1, which has a ratio R of 1.2 or less, in which the ratio R is defined as a ratio of a maximum value to a minimum value of a forced fading rate constants k_R, k_G and k_B that are decided by printing a black square symbol of JIS code 2223 in 48-point by using the black ink, measuring reflection densities D_R, D_G and D_B of the printed symbol with respect to 3 colors of C (cyan), M (magenta) and Y (yellow) through a status A filter to obtain initial densities, respectively, forcedly fading the printed symbol by an ozone fading tester capable of continuously generating 5 ppm of ozone, and determining the times taken until the reflection densities D_R, D_G and D_B reach 80% of the initial densities, respectively.

Claim 7. (original): The black ink for ink-jet recording according to claim 6, which comprises a dye having an oxidation potential of more than 1.0 V (vs SCE).

Claim 8. (original): The black ink for ink-jet recording according to claim 2, which has: a forced fading rate constant k_{vis} of 5.0×10^{-2} [$hour^{-1}$] or less; and a ratio R of 1.2 or less,

in which the forced fading rate constant k_{vis} is decided by printing a black square symbol of JIS code 2223 in 48-point by using the black ink, measuring a reflection density D_{vis} of the printed symbol through a status A filter to obtain an initial density, forcedly fading the printed symbol by an ozone fading tester capable of continuously generating 5 ppm of ozone, and determining the time taken until the reflection density D_{vis} reaches 80% of the initial density, and

the ratio R is defined as a ratio of a maximum value to a minimum value of a forced fading rate constants k_R, k_G and k_B that are decided by printing a black square symbol of JIS code 2223 in 48-point by using the black ink, measuring reflection densities D_R, D_G and D_B of the printed symbol with respect to 3 colors of C (cyan), M (magenta) and Y (yellow) through a status A filter to obtain initial densities, respectively, forcedly fading the printed symbol by an ozone fading tester capable of continuously generating 5 ppm of ozone, and determining the times taken until the reflection densities D_R, D_G and D_B reach 80% of the initial densities, respectively.

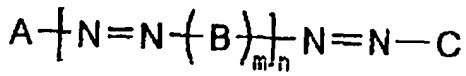
Claim 9. (original): The black ink for ink-jet recording according to claim 8, which comprises a dye having an oxidation potential of more than 1.0 V (vs SCE).

Claim 10. (currently amended): The black ink for ink-jet recording according to claim 3, which has a forced fading rate constant k_{vis} of 5.0×10^{-2} [$hour^{-1}$] or less, in which the forced fading rate constant k_{vis} is decided by printing a black square symbol of JIS code 2223 in 48-point by using the black ink, measuring a reflection density D_{vis} of the printed symbol through a status A filter to obtain an initial density, forcedly fading the printed symbol by an ozone

fading tester capable of continuously generating 5 ppm of ozone, and determining the time taken until the reflection density D_{vis} reaches 80% of the initial density.

Claim 11. (original): The black ink for ink-jet recording according to claim 10, which comprises a dye having an oxidation potential of more than 1.0 V (vs SCE).

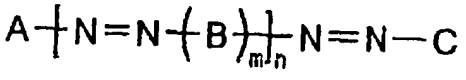
Claim 12. (currently amended): The black ink for ink-jet recording according to claim 1, which comprises a second dye having a λmax of 350 to 500 nm in an absorption spectrum of an aqueous solution, wherein the second dye is represented by the following general formula (1):



wherein A, B and C each independently represent an aromatic or heterocyclic group, which are substituted or unsubstituted; m is 1 or 2; n is an integer of 0 or more.

Claim 13. (canceled).

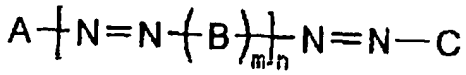
Claim 14. (currently amended): The black ink for ink-jet recording according to claim 2, wherein the ~~which comprises a~~ second dye having a λmax of 350 to 500 nm in an absorption spectrum of an aqueous solution is represented by the following general formula (1):



wherein A, B and C each independently represent an aromatic or heterocyclic group, which are substituted or unsubstituted; m is 1 or 2; n is an integer of 0 or more.

Claim 15. (canceled).

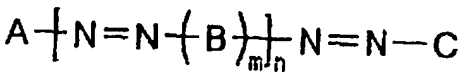
Claim 16. (currently amended): The black ink for ink-jet recording according to claim 3, which comprises a second dye having a λmax of 350 to 500 nm in an absorption spectrum of an aqueous solution, wherein the second dye is represented by the following general formula (1):



wherein A, B and C each independently represent an aromatic or heterocyclic group, which are substituted or unsubstituted; m is 1 or 2; n is an integer of 0 or more.

Claim 17. (canceled).

Claim 18. (currently amended): The black ink for ink-jet recording according to claim 4, which comprises a second dye having a λmax of 350 to 500 nm in an absorption spectrum of an aqueous solution, wherein the second dye is represented by the following general formula (1):



wherein A, B and C each independently represent an aromatic or heterocyclic group, which are substituted or unsubstituted; m is 1 or 2; n is an integer of 0 or more.

Claim 19. (canceled).

Claim 20. (new): The black ink for ink-jet recording according to claim 1, wherein n in formula (1) is 1.

Claim 21. (new): The black ink for ink-jet recording according to claim 1, wherein B and C in formula (1) each is an unsaturated heterocyclic group.

Claim 22. (new): The black ink for ink-jet recording according to claim 2, wherein in the first dye, n in formula (1) is 1.

Claim 23. (new): The black ink for ink-jet recording according to claim 2, wherein in the first dye, B and C in formula (1) each is an unsaturated heterocyclic group.

Claim 24. (new): The black ink for ink-jet recording according to claim 3, wherein n in formula (1) is 1.

Claim 25. (new): The black ink for ink-jet recording according to claim 3, wherein B and C in formula (1) each is an unsaturated heterocyclic group.

Claim 26. (new): The black ink for ink-jet recording according to claim 4, wherein n in formula (1) is 1.

Claim 27. (new): The black ink for ink-jet recording according to claim 4, wherein B and C in formula (1) each is an unsaturated heterocyclic group.